

WHAT IS CLAIMED IS:

1. A sewing machine comprising:
  - a head portion having a sewing needle driven to vertically reciprocate;
  - 5 a lower shaft having a shuttle connected thereto which is driven to rotate synchronized with the vertical movement of the sewing needle cooperating to form stitches;
  - a table positioned above the lower shaft;
  - a retainer positioned above the table to retain a material for forming stitches thereon;
  - a holding frame placed parallel to the table, the head portion being mounted at a position
  - 10 on the holding frame; and
  - supporting posts adapted to support opposite ends of the holding frame for positioning the holding frame above the table.
- 15 2. The sewing machine as claimed in claim 1, further comprising:
  - an X-axis feeding means installed above the table to move the retainer in a leftward and rightward direction along an X-axis; and
  - a Y-axis feeding means installed below the table to move the X-axis feeding means in a forward and backward directions along the Y-axis direction.
- 20 3. The sewing machine as claimed in claim 2, wherein the X-axis feeding means comprises:
  - an X-axis frame elongated in the leftward and rightward direction;
  - a guide rail installed or formed in the X-axis frame;
  - 25 a holding portion coupled with the guide rail to move in the leftward and rightward

direction while holding the retainer; and

an X-axis driving motor for moving the holding portion.

4. The sewing machine as claimed in claim 2, wherein the Y-axis feeding means  
5 comprises:

a moving portion for moving the X-axis feeding means in the forward or backward  
direction; and

a Y-axis driving motor for moving the moving portion.

10 5. The sewing machine as claimed in claim 4, wherein the moving portion comprises a  
belt moved by the Y-axis driving motor.

6. The sewing machine as claimed in claim 1, further comprising:

an arm lifting device coupled to the holding frame together with the head portion for  
15 moving the head portion upward or downward.

7. The sewing machine as claimed in claim 6, wherein the arm lifting device comprises:

a guide plate held on the holding frame; and

a feeder held on the head portion, the feeder being adapted to move upward and  
20 downward in accordance with the guide plate.

8. The sewing machine as claimed in claim 6, wherein the arm lifting device is moved  
upward and downward using either hydraulic pressure or pneumatic pressure.

25 9. The sewing machine as claimed in claim 1, further comprising:

an upper axis driving motor connected to an upper shaft for driving the sewing needle of the head portion to vertically reciprocate; and

a lower axis driving motor connected to the lower shaft for driving the shuttle to rotate.